Occupational Health - Zoonotic Disease Fact Sheet

Hantavirus

KEY FACTS:

- Infection with Hantavirus can cause Hantavirus Pulmonary Syndrome (HPS), a potentially life threating disease, or Hemorrhagic Fever with Renal Syndrome (HFRS).
- Hantavirus is named for the Hantan River area in South Korea where an early outbreak was observed.
- Hantavirus is the general name for a group of illnesses caused by species of hantaviruses from the family Bunyaviridae. It is also known as Korean hemorrhagic fever, epidemic hemorrhagic fever, Hantaan River, Dobrava-Belgrade, Saaremaa, Sin Nombre Virus, and Puumala.

SPECIES: Wild rodents. Rodents in the United States that carry hantavirus include the cotton rat, rice rat, deer mouse, and white-footed mouse.

CAUSATIVE AGENT: Orthohantaviruses, or hantaviruses, are single-stranded, enveloped, negative-sense RNA viruses in the Hantaviridae family of the order Bunyavirales,

TRANSMISSION: The main mode of transmission is aerosol transmission from infected rodent excreta, urine, saliva, and exposure to infected dust from nesting material. Infection from a bite from a rodent is rare but has occurred. Person to person transmission is extraordinarily rare, however, cases have been documented in Chile and Argentina. Laboratory transmission can occur from aerosol and droplet exposure of the mucous membranes, accidental parenteral inoculation, and ingestion.

DISEASE IN ANIMALS: Hantavirus does not usually cause disease in rodents.

DISEASE IN HUMANS: Hantavirus Pulmonary Syndrome (HPS): HPS is characterized by fever, myalgia, muscle aches, headaches, dizziness, chills, vomiting, and diarrhea. Four to 10 days after the initial phase of illness, the late symptoms of HPS appear, which include coughing and shortness of breath, as well as fluid in the lungs. The mortality rate of HPS is 38 percent. Hemorrhagic Fever with Renal Syndrome (HFRS): Symptoms of HFRS usually develop within 1 to 2 weeks after exposure to infectious material, but in rare cases, they may take up to 8 weeks to develop. HFRS is characterized by an abrupt onset of fever lasting 3-8 days, conjunctival injection, prostration, backpain, headache, abdominal pains, anorexia and vomiting; hemorrhagic manifestation include proteinuria, hypotension, and shock. The severity of the disease varies depending upon the virus causing the infection. Case fatality rates for HFRS range from 1-15 percent.

DIAGNOSIS: The diagnosis of hantavirus infections in humans is based on clinical and epidemiological information. *Please review current literature before prescribing diagnostic testing as recommendations may have changed.*

TREATMENT: There are no antiviral treatments for hantavirus infection. Supportive and palliative treatment are the mainstay of care for patients with hantavirus infections, including providing patients with fluids and electrolytes to limit dehydration, and providing oxygen when infected with HPS. Ribavirin given by IV has shown to be effective during the early phase of the HFRS illness; has not shown any effectiveness for HPS to date. *Please consult your physician for treatment as recommendations may have changed.*

PREVENTION AND CONTROL: Good rodent control and careful cleaning of rodent-infested areas will help prevent infection with hantavirus. Proper personal protective equipment, including respirators, should be worn when handling potentially infectious specimens, cultures, or tissues. To prevent and control unintended infections, use uninfected animals for research, and isolate any animals used in clinical trials. Additionally, only conduct projects in laboratories with proper engineering controls and train staff members in the proper use of required personal protective equipment when they are in spaces containing live agent.

More information on Hantavirus can be found on the Centers for Disease Control and Prevention website at: https://www.cdc.gov/hantavirus/index.html